

**REMARKS**

Claims 6-10 are currently pending in the application. Claims 6, 8 and 10 have been amended. Applicants respectfully request reconsideration of the application as amended herein.

**35 U.S.C. § 112 Claim Rejections**

Claims 6 through 10 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

To show the subject matter of currently amended independent claim 6 is clearly described in the original specification and drawings, each major step is set forth including the location within the specification as follows:

1. Supplying a substrate including a dielectric layer for making a transistor (Claim 6, lines 1-2, [0026] – [0027]).
2. Forming a gate structure overlying the dielectric layer including; (Claim 6, lines 3-5, FIG. 2, [0028] – [0030]).
  - a. Forming a gate oxide layer on the dielectric layer
  - b. Forming a metal silicide on the gate oxide layer
3. Sidewalls of the gate structure define two active contact regions separated by a channel (area under the gate structure) (Claim 6, lines 6-7, [0035]).
4. Apply a first N-type dopant where the gate structure acts as mask, dosing the entire contact region (Claim 6, lines 11-12, [0035]).
5. Form a first spacer on the sidewalls of the gate structure (Claim 6, lines 13-16, FIG. 3, [0040]).
6. Providing an annealing/oxidation step (Claim 6, line 17, FIG. 4, [0041]).
7. Form a second spacer (Claim 6, lines 18-20, FIG. 5, [0042]).
8. Apply a second N-type dopant (second spacer acts as a mask) (Claim 6, lines 21 -22,

FIG. 5, [0043]) (this doses the unmasked region a second time, raising the dopant concentration for the unmasked region).

9. Reduce the thickness of the second spacer, creating a third spacer mask (Claim 6, lines 23-24, FIG. 6, [0045])
10. Applying a third N-type dopant (third spacer acts as a mask) (Claim 6, lines 25-26, FIG. 6, [0045]) (this doses the end of the contact region a third time, and the region between the third spacer and the previous location of the second spacer a second time, creating a dopant concentration gradient with a low concentration near the channel, followed by an intermediate concentration, and a high dopant concentration on the outside end of the active contact area).

Review of currently amended independent claim 6 and the corresponding method steps disclosed in the original specification, clearly demonstrates that claim 6 is allowable, and that the claimed invention does not claim subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention for the invention to comply with the provisions of 35 U.S.C. § 112, first paragraph. As such the Applicants respectfully request that the rejection under 35 U.S.C. § 112, first paragraph, to independent claim 6 be withdrawn.

Each of claims 7-10 depend from allowable independent claim 6 and as such are equally allowable, as well as for any additional patentable subject matter disclosed therein.

Additionally, each of claims 7-10 are fully supported in the original disclosure and are allowable under 35 U.S.C. § 112, first paragraph. Support for each of the claims is as follows:

Support for claim 7 is found at specification [0040].

Support for claim 8 is found at specification [0043].

Support for claim 9 is found at specification [0043], disclosure of range 400-1000 angstroms.

Support for claim 10 is found at specification [0040].

Therefore each of claims 7-10 are allowable under 35 U.S.C. § 112, first paragraph and as such the Applicants respectfully request the rejection to claims 7-10 be withdrawn.

### **35 U.S.C. § 112 Claim Rejections**

Claims 6 through 10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The Examiner has objected to the language of claim 6 requiring a “gate oxide [layer] formed on the dielectric layer.” The Examiner has assumed for the purposes of examination that that the gate oxide layer is part of the dielectric layer (Office Action 02/02/2006, page 4).

The Applicants respectfully submit that as currently amended claim 6 comports with the specification and distinctly claims the subject matter the Applicants regard as their invention.

The specification discloses that “additional oxide layers...may also be deposited to increase the thickness of the gate dielectric 14... [to] provide improved surface protection during ion implantation process steps...” [0034]. Therefore the “gate oxide” layer is a distinct layer disposed on the dielectric layer 14 and is particularly pointed out and distinctly claimed.

Therefore, presently amended claims 6 through 10 are allowable under the provisions of 35 U.S.C. § 112, second paragraph.

### **35 U.S.C. § 103(a) Obviousness Rejections**

Obviousness Rejection Based on U.S. Patent 5,866,460 to Akram et al. in view of U.S. Patent 6,187,645 to Lin et al.

Claims 6 through 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Akram et al., U.S. Patent 5,866,460 (hereinafter, “Akram”) in view of Lin et al., U.S. Patent 6,187,645 (hereinafter, “Lin”). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Applicants assert that any combination of the Akram et al. reference and the Lin et al. reference fails to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed invention of independent claim 6 because any combination of the cited prior art fails to teach or suggest all the claim limitations.

Akram describes a method for making a transistor comprising providing a substrate 10 and forming a dielectric layer 14 on portion of the substrate 10 (Col. 4, lines 9-12); forming a gate structure 19 on the dielectric layer 14, the gate structure having sidewalls (Col. 4, lines 23-55, Figs. 1A-2A). Using the gate structure as a mask to control the introduction of a first dopant to the substrate (Col. 5, lines 3-5). Forming a first single sidewall spacer on the sidewalls (26, Fig. 2A), and introducing a second dopant (Col. 6, lines 9-16), forming a second sidewall spacer and introducing a third dopant (Col. 6, lines 34-47), forming a third sidewall spacer and introducing a forth dopant (Col. 6, lines 48-55). Akram fails to disclose depositing a conformal layer or a "thin layer sidewall spacer" and subsequent annealing/oxidization step at an elevated temperature.

Lin describes a method for making a transistor comprising, providing a substrate with a gate structure with sidewalls, and applying a conformal layer 308 or a "thin layer sidewall spacer" to the sidewalls and annealing the device at an elevated temperature (Col. 3, lines 45-59).

Currently amended claim 6 describes a method for making a transistor on a substrate including, "forming a gate structure overlying the dielectric layer, the gate structure having a gate oxide layer formed on the dielectric layer..."

Neither, Akram or Lin discloses "a gate oxide layer formed on the dielectric layer." Therefore neither Akram or Lin or a combination of the two references teaches or suggests each

and every element of independent claim 6. As such the Applicants respectfully request the 35 U.S.C. § 103(a) rejection over Akram in view of Lin to independent claim 6 be withdrawn.

Claims 7-10 depend from allowable independent claim 6 and as such are equally allowable as well as for any additional patentable subject matter disclosed therein.

#### ENTRY OF AMENDMENTS

The amendments to claims 6, 8 and 10 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

#### CONCLUSION

Claims 6 through 10 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

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